

SEQUENCE LISTING

(1) GENERAL INFORMATION:

5

(i) APPLICANT:

(A) NAME: The Government of the United States of
America as represented by the ...

10

(B) STREET: Mail Stop E-67, Executive Park, Bldg. 4,
Suite 1103

(C) CITY: Atlanta

(D) STATE: Georgia

(E) COUNTRY: U.S.A.

15

(F) POSTAL CODE (ZIP): 30329

(ii) TITLE OF INVENTION: Antigenically Reactive Regions of the
Hepatitis A Virus Polyprotein

(iii) NUMBER OF SEQUENCES: 88

20

(iv) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Floppy disk

(B) COMPUTER: IBM PC compatible

(C) OPERATING SYSTEM: PC-DOS/MS-DOS

25

(D) SOFTWARE: PatentIn Release #1.0, Version #1.30 (EPO)

(2) INFORMATION FOR SEQ ID NO: 1:

30

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

35

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

40

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

45

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1206

Ile Gln Ser Val
20

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

30 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1208

Ser Ser Val His
20

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

55 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

- (A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1210

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 3:

10 Glu Val Gly Ser His Gln Val Glu Pro Leu Arg Thr Ser Val Asp Lys
1 5 10 15
15 Pro Gly Ser Lys
20

(2) INFORMATION FOR SEQ ID NO: 4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

- (A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1211

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 4:

40 Glu Pro Leu Arg Thr Ser Val Asp Lys Pro Gly Ser Lys Lys Thr Gln
1 5 10 15
45 Gly Glu Lys Phe
20

(2) INFORMATION FOR SEQ ID NO: 5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

5 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

10 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1212

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 5:

Asp Lys Pro Gly Ser Lys Lys Thr Gln Gly Glu Lys Phe Phe Leu Ile

1 5 10 15

20 His Ser Ala Asp

20

(2) INFORMATION FOR SEQ ID NO: 6:

25 (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

30 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1215

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 6:

Leu Tyr Asn Glu Gln Phe Ala Val Gln Gly Leu Leu Arg Tyr His Thr

1 5 10 15

Tyr Ala Arg Phe

20

(2) INFORMATION FOR SEQ ID NO: 7:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1216

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 7:

His	Thr	Tyr	Ala	Arg	Phe	Gly	Ile	Glu	Ile	Gln	Val	Gln	Ile	Asn	Pro
1				5				10						15	
Thr	Pro	Phe	Gln												
			20												

(2) INFORMATION FOR SEQ ID NO: 8:

(i) SEQUENCE CHARACTERISTICS:
35 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

40 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:
50 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1217

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 8:

Ile Asn Pro Thr Pro Phe Gln Gln Gly Gly Leu Ile Cys-Ala-Met-Val
1 5 10 15

Pro Gly Asp Gln
20

(2) INFORMATION FOR SEQ ID NO: 9:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1222

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 9:

His Phe Lys Asp Pro Gln Tyr Pro Val Trp Glu Leu Thr Ile Arg Val
1 5 10 15

Trp Ser Glu Leu
20

(2) INFORMATION FOR SEQ ID NO: 10:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1224

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 10:

10 Asn Ile Gly Thr Gly Thr Ser Ala Tyr Thr Ser Leu Asn Val Leu Ala
1 5 10 15

Arg Phe Thr Asp
20

15

(2) INFORMATION FOR SEQ ID NO: 11:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35 (B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1235

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 11:

40

Ser Asp Pro Ser Gln Gly Gly Gly Ile Lys Ile Thr His Phe Thr Thr
1 5 10 15

Trp Thr Ser Ile
20

45

(2) INFORMATION FOR SEQ ID NO: 12:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

50 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1236

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 12:

Gly Gly Ile Lys Ile Thr His Phe Thr Thr Trp Thr Ser Ile Pro Thr
1 5 10 15

20 Leu Ala Ala Gln
20

(2) INFORMATION FOR SEQ ID NO: 13:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

40 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1241

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 13:

Gln Phe Pro Phe Asn Ala Ser Asp Ser Val Gly Gln Gln Ile Lys Val
1 5 10 15

50 Ile Pro Val Asp
20

(2) INFORMATION FOR SEQ ID NO: 14:

- (i) SEQUENCE CHARACTERISTICS:
- 5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- 10 (ii) MOLECULE TYPE: peptide
- (iii) HYPOTHETICAL: NO
- (iv) ANTI-SENSE: NO
- 15 (v) FRAGMENT TYPE: internal
- (ix) FEATURE:
- 20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1242
- 25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 14:
- | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Asn | Ala | Ser | Asp | Ser | Val | Gly | Gln | Gln | Ile | Lys | Val | Ile | Pro | Val |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
- 30 Asp Pro Tyr Phe
20

(2) INFORMATION FOR SEQ ID NO: 15:

- 35 (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear
- 40 (ii) MOLECULE TYPE: peptide
- (iii) HYPOTHETICAL: NO
- 45 (iv) ANTI-SENSE: NO
- (v) FRAGMENT TYPE: internal
- 50 (ix) FEATURE:
- (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1243

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 15:

Ser Asp Ser Val Gly Gln Gln Ile Lys Val Ile Pro Val Asp Pro Tyr
1 5 10 15

5

Phe Phe Gln Met
20

(2) INFORMATION FOR SEQ ID NO: 16:

10

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

15

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

25

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1244

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 16:

Ile Lys Val Ile Pro Val Asp Pro Tyr Phe Phe Gln Met Thr Asn Thr
1 5 10 15

35

Asn Pro Asp Gln
20

40 (2) INFORMATION FOR SEQ ID NO: 17:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

45

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

50

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

55

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1247

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 17:

10 Lys Cys Ile Thr Ala Leu Ala Ser Ile Cys Gln Met Phe Cys Phe Trp
1 5 10 15
Arg Gly Asp Leu
20

(2) INFORMATION FOR SEQ ID NO: 18:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1248

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 18:

40 Phe Trp Arg Gly Asp Leu Val Phe Asp Phe Gln Val Phe Pro Thr Lys
1 5 10 15
Tyr His Ser Gly
45 20

(2) INFORMATION FOR SEQ ID NO: 19:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

~~(iv) ANTI-SENSE: NO~~

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1249

15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 19:

Phe Asp Phe Gln Val Phe Pro Thr Lys Tyr His Ser Gly Arg Leu Leu
1 5 10 15

20

Phe Cys Phe Val
20

(2) INFORMATION FOR SEQ ID NO: 20:

25

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1250

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 20:

Phe Pro Thr Lys Tyr His Ser Gly Arg Leu Leu Phe Cys Phe Val Pro
1 5 10 15

50

Gly Asn Glu Leu
20

(2) INFORMATION FOR SEQ ID NO: 21:

(i) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

10

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1252

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 21:

25

Gly Ile Thr Leu Lys Gln Ala Thr Thr Ala Pro Cys Ala Val Met Asp
1 5 10 15

30

Ile Thr Gly Val
20

(2) INFORMATION FOR SEQ ID NO: 22:

(i) SEQUENCE CHARACTERISTICS:

- 35 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

45

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

50

- (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1261

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 22:

Val Ala Ser His Val Arg Val Asn Val Tyr Leu Ser Ala Ile Asn Leu
1 5 10 15

5 Glu Cys Phe Ala
20

(2) INFORMATION FOR SEQ ID NO: 23:

10 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

25 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1265

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 23:

Thr Thr Val Ser Thr Glu Gln Asn Val Pro Asp Pro Gln Val Gly Ile
1 5 10 15

35

Thr Thr Met Lys
20

(2) INFORMATION FOR SEQ ID NO: 24:

40

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

45

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

50

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

55

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1266

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 24:

Gln Asn Val Pro Asp Pro Gln Val Gly Ile Thr Thr Met Lys Asp Leu
10 1 5 10 15

Lys Gly Lys Ala
20

15 (2) INFORMATION FOR SEQ ID NO: 25:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

20 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25 (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

35 (D) OTHER INFORMATION: /label= YK-1268

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 25:

40 Asn Arg Gly Lys Met Asp Val Ser Gly Val Gln Ala Pro Val Gly Ala
 1 5 10 15

Ile Thr Thr Ile
20

45

(2) INFORMATION FOR SEQ ID NO: 26:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

50 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

55

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

10 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1271

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 26:

15 Ile Thr Thr Ile Glu Asp Pro Val Leu Ala Lys Lys Val Pro Glu Thr
1 5 10 15
20 Phe Pro Glu Leu
20

(2) INFORMATION FOR SEQ ID NO: 27:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

40 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1272

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 27:

Glu Asp Pro Val Leu Ala Lys Lys Val Pro Glu Thr Phe Pro Glu Leu
1 5 10 15
50 Lys Pro Gly Glu
20

(2) INFORMATION FOR SEQ ID NO: 28:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1273

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 28:

Ala	Lys	Lys	Val	Pro	Glu	Thr	Phe	Pro	Glu	Leu	Lys	Pro	Gly	Glu	Ser
1				5					10					15	
Arg	His	Thr	Ser												
				20											

(2) INFORMATION FOR SEQ ID NO: 29:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

45 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:
50 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1274

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 29:

Phe Pro Glu Leu Lys Pro Gly Glu Ser Arg His Thr Ser Asp His Met
1 5 10 15

Ser Ile Tyr Lys
20

(2) INFORMATION FOR SEQ ID NO: 30:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1276

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 30:

Asp His Met Ser Ile Tyr Lys Phe Met Gly Arg Ser His Phe Leu Cys
1 5 10 15

Thr Phe Thr Phe
20

(2) INFORMATION FOR SEQ ID NO: 31:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1279

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 31:

10 His Phe Leu Cys Thr Phe Thr Phe Asn Ser Asn Asn Lys Glu Tyr Thr
1 5 10 15
Phe Pro Ile Thr
20

(2) INFORMATION FOR SEQ ID NO: 32:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1290

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 32:

40 Thr Pro Val Gly Leu Ala Val Asp Thr Pro Trp Val Glu Lys Glu Ser
1 5 10 15
Ala Leu Ser Ile
45 20

(2) INFORMATION FOR SEQ ID NO: 33:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

~~(iv) ANTI-SENSE: NO~~

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1307

15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 33:

Leu Ser Phe Ser Cys Tyr Leu Ser Val Thr Glu Gln Ser Glu Phe Tyr
1 5 10 15

20

Phe Pro Arg Ala
20

(2) INFORMATION FOR SEQ ID NO: 34:

25

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1308

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 34:

Ser Val Thr Glu Gln Ser Glu Phe Tyr Phe Pro Arg Ala Pro Leu Asn
1 5 10 15

50

Ser Asn Ala Met
20

(2) INFORMATION FOR SEQ ID NO: 35:

(i) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 20 (A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1310

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 35:

25 Pro Leu Asn Ser Asn Ala Met Leu Ser Thr Glu Ser Met Met Ser Arg
1 5 10 15
30 Ile Ala Ala Gly
20

(2) INFORMATION FOR SEQ ID NO: 36:

(i) SEQUENCE CHARACTERISTICS:

- 35 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

45 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 50 (A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1312

55 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 36:

Met Ser Arg Ile Ala Ala Gly Asp Leu Glu Ser Ser Val Asp Asp Pro
1 5 10 15

5 Arg Ser Glu Glu
20

(2) INFORMATION FOR SEQ ID NO: 37:

10 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

25 (ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1313

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 37:

Ala Gly Asp Leu Glu Ser Ser Val Asp Asp Pro Arg Ser Glu Glu Asp
1 5 10 15

35

Lys Arg Phe Glu
20

(2) INFORMATION FOR SEQ ID NO: 38:

40

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
45 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

50

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

55

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1314

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 38:

Val Asp Asp Pro Arg Ser Glu Glu Asp Lys Arg Phe Glu Ser His Ile
1 5 10 15
Glu Cys Arg Lys
20

15 (2) INFORMATION FOR SEQ ID NO: 39:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

20 (C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25 (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

35 (D) OTHER INFORMATION:/label= YK-1315

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 39:

Ser His Ile Glu Cys Arg Lys Pro Tyr Lys Glu Leu Arg Leu Glu Val
1 5 10 15
Gly Lys Gln Arg
20

45

(2) INFORMATION FOR SEQ ID NO: 40:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

50 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

55

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

10 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1316

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 40:

15 Pro Tyr Lys Glu Leu Arg Leu Glu Val Gly Lys Gln Arg Leu Lys Tyr
1 5 10 15

20 Ala Gln Glu Glu
20

(2) INFORMATION FOR SEQ ID NO: 41:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

40 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1317

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 41:

Gln Arg Leu Lys Tyr Ala Gln Glu Glu Leu Ser Asn Glu Val Leu Pro
1 5 10 15

50 Pro Pro Arg Lys
20

(2) INFORMATION FOR SEQ ID NO: 42:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1318

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 42:
Val Leu Pro Pro Pro Arg Lys Met Lys Gly Leu Phe Ser Gln Ala Lys
1 5 10 15
30 Ile Ser Leu Phe
20

(2) INFORMATION FOR SEQ ID NO: 43:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
40 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
45 (iv) ANTI-SENSE: NO
(v) FRAGMENT TYPE: internal

50 (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION: 1..20
(D) OTHER INFORMATION: /label= YK-1319

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 43:

Phe Ser Gln Ala Lys Ile Ser Leu Phe Tyr Thr Glu Glu His Glu Ile
1 5 10 15

Met Lys Phe Ser
20

(2) INFORMATION FOR SEQ ID NO: 44:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1327

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 44:

Lys Val Asn Phe Pro His Gly Met Leu Asp Leu Glu Glu Ile Ala Ala
1 5 10 15

Asn Ser Lys Asp
20

(2) INFORMATION FOR SEQ ID NO: 45:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

5 (D) OTHER INFORMATION: /label= YK-1328

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 45:

10 Asp Leu Glu Glu Ile Ala Ala Asn Ser Lys Asp Phe Pro Asn Met Ser
1 5 10 15

Glu Thr Asp Leu
20

15

(2) INFORMATION FOR SEQ ID NO: 46:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35 (B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1331

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 46:

40

Lys Ile Asn Leu Ala Asp Arg Met Leu Gly Leu Ser Gly Val Gln Glu
1 5 10 15

Ile Lys Glu Gln
20

45

(2) INFORMATION FOR SEQ ID NO: 47:

(i) SEQUENCE CHARACTERISTICS:

50 (A) LENGTH: 25 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..25

(D) OTHER INFORMATION:/label= YK-1665

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 47:

Gln Arg Leu Lys Tyr Ala Gln Glu Glu Leu Ser Asn Glu Val Leu Pro
1 5 10 15

20 Pro Pro Arg Lys Met Lys Gly Leu Phe
20 25

(2) INFORMATION FOR SEQ ID NO: 48:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 25 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..25

(D) OTHER INFORMATION:/label= YK-1757

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 48:

Trp Leu Asn Pro Lys Lys Ile Asn Leu Ala Asp Arg Met Leu Gly Leu
1 5 10 15

50

Ser Gly Val Gln Glu Ile Lys Glu Gln
20 25

(2) INFORMATION FOR SEQ ID NO: 49:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1334

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 49:
Val Ile Gln Gln Leu Asn Gln Asp Glu His Ser His Ile Ile Gly Leu
1 5 10 15
30 Leu Arg Val Met
20

(2) INFORMATION FOR SEQ ID NO: 50:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
45 (iv) ANTI-SENSE: NO
(v) FRAGMENT TYPE: internal

50 (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1341

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 50:

Asn Ile Leu Lys Asp Asn Gln Gln Lys Ile Glu Lys Ala Ile Glu Glu
1 5 10 15

Ala Asp Glu Phe
20

(2) INFORMATION FOR SEQ ID NO: 51:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1347

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 51:

Leu Gly Ser Ile Asn Gln Ala Met Val Thr Arg Cys Glu Pro Val Val
1 5 10 15

Cys Tyr Leu Tyr
20

(2) INFORMATION FOR SEQ ID NO: 52:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

5 (D) OTHER INFORMATION:/label= YK-1348

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 52:

10 Arg Cys Glu Pro Val Val Cys Tyr Leu Tyr Gly Lys Arg Gly Gly Gly
1 5 10 15

Lys Ser Leu Thr
20

15

(2) INFORMATION FOR SEQ ID NO: 53:

(i) SEQUENCE CHARACTERISTICS:

20 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

35 (A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1352

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 53:

40

Thr Lys Pro Val Ala Ser Asp Tyr Trp Asp Gly Tyr Ser Gly Gln Leu
1 5 10 15

Val Cys Ile Ile
20

45

(2) INFORMATION FOR SEQ ID NO: 54:

(i) SEQUENCE CHARACTERISTICS:

50 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

55 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1356

15

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 54:

Val Ser Gly Cys Pro Met Arg Leu Asn Met Ala Ser Leu Glu Glu Lys
1 5 10 15

20

Gly Arg His Phe
20

(2) INFORMATION FOR SEQ ID NO: 55:

25

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1357

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 55:

Leu Asn Met Ala Ser Leu Glu Glu Lys Gly Arg His Phe Ser Ser Pro
1 5 10 15

50

Phe Ile Ile Ala
20

(2) INFORMATION FOR SEQ ID NO: 56:

(i) SEQUENCE CHARACTERISTICS:

5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1360

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 56:

Asn	Pro	Ser	Pro	Lys	Thr	Val	Tyr	Val	Lys	Glu	Ala	Ile	Asp	Arg	Arg
1				5					10					15	
Leu	His	Phe	Lys												
			20												

(2) INFORMATION FOR SEQ ID NO: 57:

35 (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

45 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

50 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1361

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 57:

Val Lys Glu Ala Ile Asp Arg Arg Leu His Phe Lys Val Glu Val Lys -----
1-----5-----10-----15

5

Pro Ala Ser Phe
20

(2) INFORMATION FOR SEQ ID NO: 58:

10

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

25

(ix) FEATURE:

(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1362

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 58:

Val Lys Pro Ala Ser Phe Phe Lys Asn Pro His Asn Asp Met Leu Asn
1-----5-----10-----15

35

Val Asn Leu Ala
20

40 (2) INFORMATION FOR SEQ ID NO: 59:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

45

(ii) MOLECULE TYPE: peptide

50 (iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

55

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..20

5 (D) OTHER INFORMATION: /label= YK-1363

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 59:

10 Lys Asn Pro His Asn Asp Met Leu Asn Val Asn Leu Ala Lys Thr Asn
1 5 10 15

Asp Ala Ile Lys
20

15

(2) INFORMATION FOR SEQ ID NO: 60:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35 (B) LOCATION: 1..20

(D) OTHER INFORMATION: /label= YK-1364

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 60:

40

Leu Ala Lys Thr Asn Asp Ala Ile Lys Asp Met Ser Cys Val Asp Leu
1 5 10 15

Ile Met Asp Gly
20

45

(2) INFORMATION FOR SEQ ID NO: 61:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

50 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1367

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 61:

Val Met Thr Val Glu Ile Arg Lys Gln Asn Met Thr Glu Phe Met Glu
1 5 10 15

20 Leu Trp Ser Gln
20

(2) INFORMATION FOR SEQ ID NO: 62:

25 (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1368

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 62:

Ser Gln Gly Ile Ser Asp Asp Asp Asn Asp Ser Ala Val Ala Glu Phe
1 5 10 15

50

Phe Gln Ser Phe
20

(2) INFORMATION FOR SEQ ID NO: 63:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1369

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 63:
Asp Ser Ala Val Ala Glu Phe Phe Gln Ser Phe Pro Ser Gly Glu Pro
1 5 10 15
30 Ser Asn Ser Lys
20

(2) INFORMATION FOR SEQ ID NO: 64:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO

45 (iv) ANTI-SENSE: NO
(v) FRAGMENT TYPE: internal

50 (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1370

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 64:

Phe Gln Ser Phe Pro Ser Gly Glu Pro Ser Asn Ser Lys Leu Ser Gly
1 5 10 15

Phe Phe Gln Ser
20

(2) INFORMATION FOR SEQ ID NO: 65:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 25 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION: 1..25

(D) OTHER INFORMATION: /label= YK-1832

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 65:

Ser Ala Val Ala Glu Phe Phe Gln Ser Phe Pro Ser Gly Glu Pro Ser
1 5 10 15

Asn Ser Lys Leu Ser Gly Phe Phe Gln
20 25

(2) INFORMATION FOR SEQ ID NO: 66:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1374

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 66:

10 His Gly Val Thr Lys Pro Lys Gln Val Ile Lys Leu Asp Ala Asp Pro
1 5 10 15

Val Glu Ser Gln
20

15

(2) INFORMATION FOR SEQ ID NO: 67:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1376

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 67:

40

Gly Leu Val Arg Lys Asn Leu Val Gln Phe Gly Val Gly Glu Lys Asn
1 5 10 15

Gly Cys Val Arg
20

45

(2) INFORMATION FOR SEQ ID NO: 68:

(i) SEQUENCE CHARACTERISTICS:

50

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

10 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1382

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 68:

Asp Val Val Leu Met Lys Val Pro Thr Ile Pro Lys Phe Arg Asp Ile
1 5 10 15

20 Thr Gln His Phe
20

(2) INFORMATION FOR SEQ ID NO: 69:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40 (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1388

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 69:

Met Glu Glu Lys Ala Thr Tyr Val His Lys Lys Asn Asp Gly Thr Thr
1 5 10 15

50 Val Asp Leu Thr
20

(2) INFORMATION FOR SEQ ID NO: 70:

(i) SEQUENCE CHARACTERISTICS:
5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO
(iv) ANTI-SENSE: NO
15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:
20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1389

25 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 70:
Lys Asn Asp Gly Thr Thr Val Asp Leu Thr Val Asp Gln Ala Trp Arg
1 5 10 15
30 Gly Lys Gly Glu
20

(2) INFORMATION FOR SEQ ID NO: 71:

35 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide
(iii) HYPOTHETICAL: NO

45 (iv) ANTI-SENSE: NO
(v) FRAGMENT TYPE: internal

50 (ix) FEATURE:
(A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1390

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 71:

Arg Gly Lys Gly Glu Gly Leu Pro Gly Met Cys Gly Gly Ala Leu Val
1 5 10 15

Ser Ser Asn Gln
20

(2) INFORMATION FOR SEQ ID NO: 72:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1393

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 72:

Val Ala Lys Leu Val Thr Gln Glu Met Phe Gln Asn Ile Asp Lys Lys
1 5 10 15

Ile Glu Ser Gln
20

(2) INFORMATION FOR SEQ ID NO: 73:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

5 (D) OTHER INFORMATION:/label= YK-1394

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 73:

10 Arg Ile Met Lys Val Glu Phe Thr Gln Cys Ser Met Asn Val Val Ser
1 5 10 15

Lys Thr Leu Phe
20

15

(2) INFORMATION FOR SEQ ID NO: 74:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35 (B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1395

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 74:

40

Phe Thr Gln Cys Ser Met Asn Val Val Ser Lys Thr Leu Phe Arg Lys
1 5 10 15

Ser Pro Ile Tyr
20

45

(2) INFORMATION FOR SEQ ID NO: 75:

(i) SEQUENCE CHARACTERISTICS:

50 (A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

10

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1399

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 75:

Met Leu Ser Lys Tyr Ser Leu Pro Ile Val Glu Glu Pro Glu Asp Tyr
1 5 10 15

20 Lys Glu Ala Ser
20

(2) INFORMATION FOR SEQ ID NO: 76:

25 (i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

30

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

40 (ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1407

45

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 76:

Leu Asp Glu Asn Gly Leu Leu Leu Gly Val His Pro Arg Leu Ala Gln
1 5 10 15

50

Arg Ile Leu Phe
20

(2) INFORMATION FOR SEQ ID NO: 77:

(i) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1411

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 77:

25 Cys Pro Lys Asp Glu Leu Arg Pro Leu Glu Lys Val Leu Glu Ser Lys
1 5 10 15
30 Thr Arg Ala Ile
20

(2) INFORMATION FOR SEQ ID NO: 78:

(i) SEQUENCE CHARACTERISTICS:

- 35 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

45

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 50 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1412

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 78:

Ser Lys Thr Arg Ala Ile Asp Ala Cys Pro Leu Asp Tyr Ser Ile Leu
1 5 10 15
Cys Arg Met Tyr
20

(2) INFORMATION FOR SEQ ID NO: 79:

10

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

15

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

20

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

25

(ix) FEATURE:

- (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1414

30

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 79:

Arg Met Tyr Trp Gly Pro Ala Ile Ser Tyr Phe His Leu Asn Pro Gly
1 5 10 15
Phe His Thr Gly
20

40 (2) INFORMATION FOR SEQ ID NO: 80:

- (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

45

(ii) MOLECULE TYPE: peptide

50

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

55

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

5 (D) OTHER INFORMATION:/label= YK-1418

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 80:

10 Lys Thr Met Ile Arg Phe Gly Asp Val Gly Leu Asp Leu Asp Phe Ser
1 5 10 15
Ala Phe Asp Ala
20

15

(2) INFORMATION FOR SEQ ID NO: 81:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

20 (B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

35 (B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1419

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 81:

40

Asp Leu Asp Phe Ser Ala Phe Asp Ala Ser Leu Ser Pro Phe Met Ile
1 5 10 15

Arg Glu Ala Gly
20

45

(2) INFORMATION FOR SEQ ID NO: 82:

(i) SEQUENCE CHARACTERISTICS:

50 (A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

55 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

5 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

10 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1424

15 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 82:

Ile Asn Asn Val Asn Leu Tyr Tyr Val Phe Ser Lys Ile Phe Gly Lys
1 5 10 15

20 Ser Pro Val Phe
20

(2) INFORMATION FOR SEQ ID NO: 83:

25 (i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

30 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

35 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

40 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1428

45 (xi) SEQUENCE DESCRIPTION: SEQ ID NO: 83:

Gly Gln Lys Ile Val Asp Glu Phe Lys Lys Leu Gly Met Thr Ala Thr
1 5 10 15

50 Ser Ala Asp Lys
20

(2) INFORMATION FOR SEQ ID NO: 84:

(i) SEQUENCE CHARACTERISTICS:

- 5 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

10 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

15 (v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 20 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1429

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 84:

25 Leu Gly Met Thr Ala Thr Ser Ala Asp Lys Asn Val Pro Gln Leu Lys
1 5 10 15
30 Pro Val Ser Glu
20

(2) INFORMATION FOR SEQ ID NO: 85:

(i) SEQUENCE CHARACTERISTICS:

- 35 (A) LENGTH: 20 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

40 (ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

45 (iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

- 50 (A) NAME/KEY: Peptide
(B) LOCATION:1..20
(D) OTHER INFORMATION:/label= YK-1431

55

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 85:

Pro Gln Leu Lys Pro Val Ser Glu Leu Thr Phe Leu Lys Arg Ser Phe
1 5 10 15

Asn Leu Val Glu
20

(2) INFORMATION FOR SEQ ID NO: 86:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1434

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 86:

Ser Glu Lys Thr Ile Trp Ser Leu Ile Ala Trp Gln Arg Ser Asn Ala
1 5 10 15

Glu Phe Glu Gln
20

(2) INFORMATION FOR SEQ ID NO: 87:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1435

5

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 87:

10 Ser Leu Ile Ala Trp Gln Arg Ser Asn Ala Glu Phe Glu Gln Asn Leu
1 5 10 15

Glu Asn Ala Gln
20

15

(2) INFORMATION FOR SEQ ID NO: 88:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 20 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

20

(ii) MOLECULE TYPE: peptide

25

(iii) HYPOTHETICAL: NO

(iv) ANTI-SENSE: NO

30

(v) FRAGMENT TYPE: internal

(ix) FEATURE:

(A) NAME/KEY: Peptide

(B) LOCATION:1..20

(D) OTHER INFORMATION:/label= YK-1436

35

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 88:

40

Trp Gln Arg Ser Asn Ala Glu Phe Glu Gln Asn Leu Glu Asn Ala Gln
1 5 10 15

Trp Phe Ala Phe
20

45